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Nebraska Tractor Tests

Tractor Test and Power Museum, The Lester F.  
Larsen

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January 1940

### Test 353: McCormick-Deering Model W-4 (Gasoline)

Tractor Museum

*University of Nebraska-Lincoln*, [TractorMuseumArchives@unl.edu](mailto:TractorMuseumArchives@unl.edu)

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Copy of Report of Official Tractor Test No. 353

Dates of test: September 16 to 20, 1940.

Name and model of tractor: McCORMICK-DEERING W-4 (Gasoline)

Manufacturer: International Harvester Company, Chicago, Illinois.

Manufacturer's rating: NOT RATED.

B E L T H O R S E P O W E R T E S T S

| H. P. | Crank<br>shaft<br>speed<br>R.P.M. | Fuel Consumption   |                          |                         | Water<br>used<br>gal.<br>per<br>hr. | Temp.<br>Deg. F.     |     | Barometer<br>Inches of<br>Mercury |
|-------|-----------------------------------|--------------------|--------------------------|-------------------------|-------------------------------------|----------------------|-----|-----------------------------------|
|       |                                   | Gal.<br>per<br>hr. | H. P.<br>hr. per<br>gal. | Lb. per<br>H. P.<br>hr. |                                     | Cool-<br>ing<br>med. | Air |                                   |

TEST B - 100% MAXIMUM LOAD - TWO HOURS

|       |      |       |       |       |       |     |    |        |
|-------|------|-------|-------|-------|-------|-----|----|--------|
| 26.21 | 1650 | 2.254 | 11.63 | 0.532 | 0.000 | 192 | 85 | 28.775 |
|-------|------|-------|-------|-------|-------|-----|----|--------|

TEST C - OPERATING MAXIMUM LOAD - ONE HOUR

|       |      |       |       |       |       |     |    |        |
|-------|------|-------|-------|-------|-------|-----|----|--------|
| 24.30 | 1651 | 2.086 | 11.65 | 0.531 | 0.000 | 193 | 84 | 28.790 |
|-------|------|-------|-------|-------|-------|-----|----|--------|

\*TEST D - ONE HOUR

|       |      |       |       |       |       |     |    |        |
|-------|------|-------|-------|-------|-------|-----|----|--------|
| 23.77 | 1650 | 2.058 | 11.55 | 0.536 | 0.000 | 196 | 84 | 28.815 |
|-------|------|-------|-------|-------|-------|-----|----|--------|

TEST E - VARYING LOAD - TWO HOURS (20 minute runs; last line average)

|       |      |       |       |       |       |     |    |        |
|-------|------|-------|-------|-------|-------|-----|----|--------|
| 23.80 | 1651 | 2.065 | 11.53 | 0.537 | --    | 196 | 84 | --     |
| 1.40  | 1785 | 0.935 | 1.50  | 4.136 | --    | 199 | 82 | --     |
| 12.39 | 1723 | 1.464 | 8.46  | 0.731 | --    | 200 | 83 | --     |
| 23.54 | 1617 | 2.045 | 11.51 | 0.538 | --    | 195 | 84 | --     |
| 6.32  | 1753 | 1.144 | 5.52  | 1.120 | --    | 197 | 84 | --     |
| 18.26 | 1693 | 1.798 | 10.16 | 0.610 | --    | 198 | 87 | --     |
| 14.29 | 1704 | 1.575 | 9.07  | 0.682 | 0.000 | 197 | 84 | 28.825 |

D R A W B A R H O R S E P O W E R T E S T S

| H. P. | Draw<br>bar<br>pull<br>pounds | Speed<br>miles<br>per<br>hr. | Crank<br>shaft<br>Speed<br>R.P.M. | Slip<br>on<br>drive<br>wheels<br>% | Fuel Consumption   |                     |                           | Water<br>used<br>gal.<br>per<br>hr. | Temp.<br>Deg. F.     |     | Barometer<br>Inches of<br>Mercury |
|-------|-------------------------------|------------------------------|-----------------------------------|------------------------------------|--------------------|---------------------|---------------------------|-------------------------------------|----------------------|-----|-----------------------------------|
|       |                               |                              |                                   |                                    | Gal.<br>per<br>hr. | H.P.<br>per<br>gal. | Lb.<br>per<br>H.P.<br>hr. |                                     | Cool-<br>ing<br>med. | Air |                                   |

TEST F - 100% MAXIMUM LOAD - Second - GEAR

|       |      |      |      |      |       |              |  |  |     |    |        |
|-------|------|------|------|------|-------|--------------|--|--|-----|----|--------|
| 23.97 | 2957 | 3.04 | 1652 | 7.24 | ----- | Not Recorded |  |  | 193 | 93 | 28.815 |
|-------|------|------|------|------|-------|--------------|--|--|-----|----|--------|

TEST G - OPERATING MAXIMUM LOAD

|       |      |      |      |       |       |              |   |       |     |    |        |
|-------|------|------|------|-------|-------|--------------|---|-------|-----|----|--------|
| 21.12 | 3671 | 2.16 | 1650 | 10.20 | ----- | Not Recorded |   |       | 191 | 82 | 28.930 |
| 22.17 | 2693 | 3.09 | 1653 | 5.80  | ----- | "            | " | ----- | 195 | 98 | 28.800 |
| 21.91 | 2087 | 3.94 | 1650 | 4.76  | ----- | "            | " | ----- | 193 | 74 | 28.900 |
| 22.00 | 1643 | 5.02 | 1651 | 3.47  | ----- | "            | " | ----- | 194 | 79 | 28.910 |

\*TEST H - TEN HOURS - Second - GEAR

|       |      |      |      |      |       |      |       |       |     |    |        |
|-------|------|------|------|------|-------|------|-------|-------|-----|----|--------|
| 19.43 | 2362 | 3.09 | 1650 | 5.75 | 1.963 | 9.90 | 0.625 | 0.000 | 193 | 89 | 28.900 |
|-------|------|------|------|------|-------|------|-------|-------|-----|----|--------|

\*Formerly called RATED LOAD; see REMARKS 4, page 3.

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UNIVERSITY OF NEBRASKA - AGRICULTURAL ENGINEERING DEPARTMENT  
AGRICULTURAL COLLEGE, LINCOLN

Copy of Report of Official Tractor Test No. 353

FUEL, OIL, AND TIME

Fuel Gasoline Octane 73 Weight per gallon 6.19 pounds

Oil: S.A.E. No. 20 To motor 1.487 gal. Drained from motor 1.433 gal.

Total time motor was operated 52 hours

BRIEF SPECIFICATIONS

Advertised speeds miles per hour: First 2-3/8 Second 3-1/4

Third 4 Fourth 5-1/8 Fifth 14-3/4 Reverse 2-3/4

Belt pulley: Diam. 9-3/4" Face 7-1/2" R.P.M. 1019 Belt Speed 2600 f.p.m.

Clutch: Make Rockford Type Single plate Operated by foot

Seat Pressed steel with sponge rubber pad

Total weight as tested (with operator) 5850 pounds

MOTOR

Make Own Serial No. WBH 627XI Type 4 cylinder, vertical

Head I Mounting Crankshaft lengthwise Lubrication Pressure

Bore and stroke 3-3/8" x 4-1/4" Rated R.P.M. 1650

Port diameter valves: Inlet 1.344" Exhaust 1.217"

Magneto: Make Own Model H-4

Carburetor: Make Own Model D-10 Size 1"

Governor: Make Own Type Variable speed, Centrifugal

Air Cleaner: Make Donaldson Type Oil-washed wire screen filter

Oil Filter: Make Motor Improvements Inc. Type Partial flow with replaceable  
bakelite impregnated paper element

Cooling medium temperature control: Bishop and Babcock thermostat and Pines  
radiator shutters

CHASSIS

Type Standard Serial No. WBH 627XI Drive Enclosed gear

Tread width: Rear 52" Front 46"

Rear tires: No. 2 Size 12.75 x 24 - 6 ply Air pressure 16 pounds

Front tires: No. 2 Size 6.00 x 16 - 4 ply Air pressure 25 pounds

Added weight: Per rear wheel (Cast Iron 693 pounds  
(Water 324 pounds)

Copy of Report of Official Tractor Test No. 353

REPAIRS AND ADJUSTMENTS

No repairs or adjustments.

REMARKS

1. All results shown on page 1 of this report were determined from observed data and without allowances, additions, or deductions. Tests B and F were made with carburetor set for 100% maximum belt horsepower and data from these tests were used in determining the horsepower to be developed in tests D and H, respectively. Tests C, D, E, G, and H were made with an operating setting of the carburetor (selected by the manufacturer) of 92.6% of maximum belt horsepower.

|   | <u>DRAWBAR</u> | <u>BELT</u> |
|---|----------------|-------------|
| 2. Observed maximum horsepower (tests F & B)  | 23.97          | 26.21       |
| 3. Sea level (calculated) maximum horsepower<br>(based on 60° F. and 29.92" Hg.)  | 25.67          | 27.89       |
| 4. Seventy-five per cent of calculated maximum drawbar horsepower and eighty-five per cent of calculated maximum belt horsepower (formerly A.S.A.E. and S.A.E. ratings) | 19.25          | 23.71       |

We, the undersigned, certify that the above is a true and correct report of official tractor test No. 353.

Carlton L. Zink  
Engineer-in-charge

E. E. Brackett

C. W. Smith

L. W. Hurlbut  
Board of Tractor Test Engineers